The genus Pseudomonas is well-documented and understood, especially in clinical manifestations. Pseudomonas species normally inhabit soil, water, and vegetation, and often colonize hospital food, sinks, taps, mops, and respiratory equipment that can spread to patients by contact or ingestion of contaminated food and water. According to the [4th edition of Medical Microbiology](https://www.ncbi.nlm.nih.gov/books/NBK8326/), Pseudomonas is known to cause opportunistic infections in the various forms including endocarditis, pneumonia, urinary tract, and central nervous system infections. The two main species of Pseudomonas responsible for such infections are P. maltophilia and P. aeruginosa, the latter of which is particularly serious for hospital patients with cancer, cystic fibrosis, and burns. While P. aeruginosa has several virulence factors, their role in pathogenesis are unclear. It is also known that all strains of Pseudomonas can synthesize endotoxins, which likely plays a role in the virulence of the genus. A literature review of Pseudomonas indicates that it is a known human pathogen.

Looking at the results of two separate annotations of the Pseudomonas assembly obtained, the high-level subsystem statistics from RAST show 62 “Virulence, Disease, and Defense” features. Looking more closely at this subsystem, this includes genes for “resistance to antibiotics and toxic compounds” like copper, cobalt-zinc-cadmium, chromate, and Streptothricin, via efflux pumps for their respective compounds. Another feature of Pseudomonas is “invasion and intracellular resistance” via virulence operons involved in ribosomal protein synthesis and DNA transcription. Such operons would allow Pseudomonas to invade and interfere with DNA transcription in human host cells. This evidence, combined with the resistance of Pseudomonas to many known antibiotics, supports the fact that the bacterium is a known human pathogen.

References:

Iglewski BH. Pseudomonas. In: Baron S, editor. Medical Microbiology. 4th edition. Galveston (TX): University of Texas Medical Branch at Galveston; 1996. Chapter 27. Available from: https://www.ncbi.nlm.nih.gov/books/NBK8326/